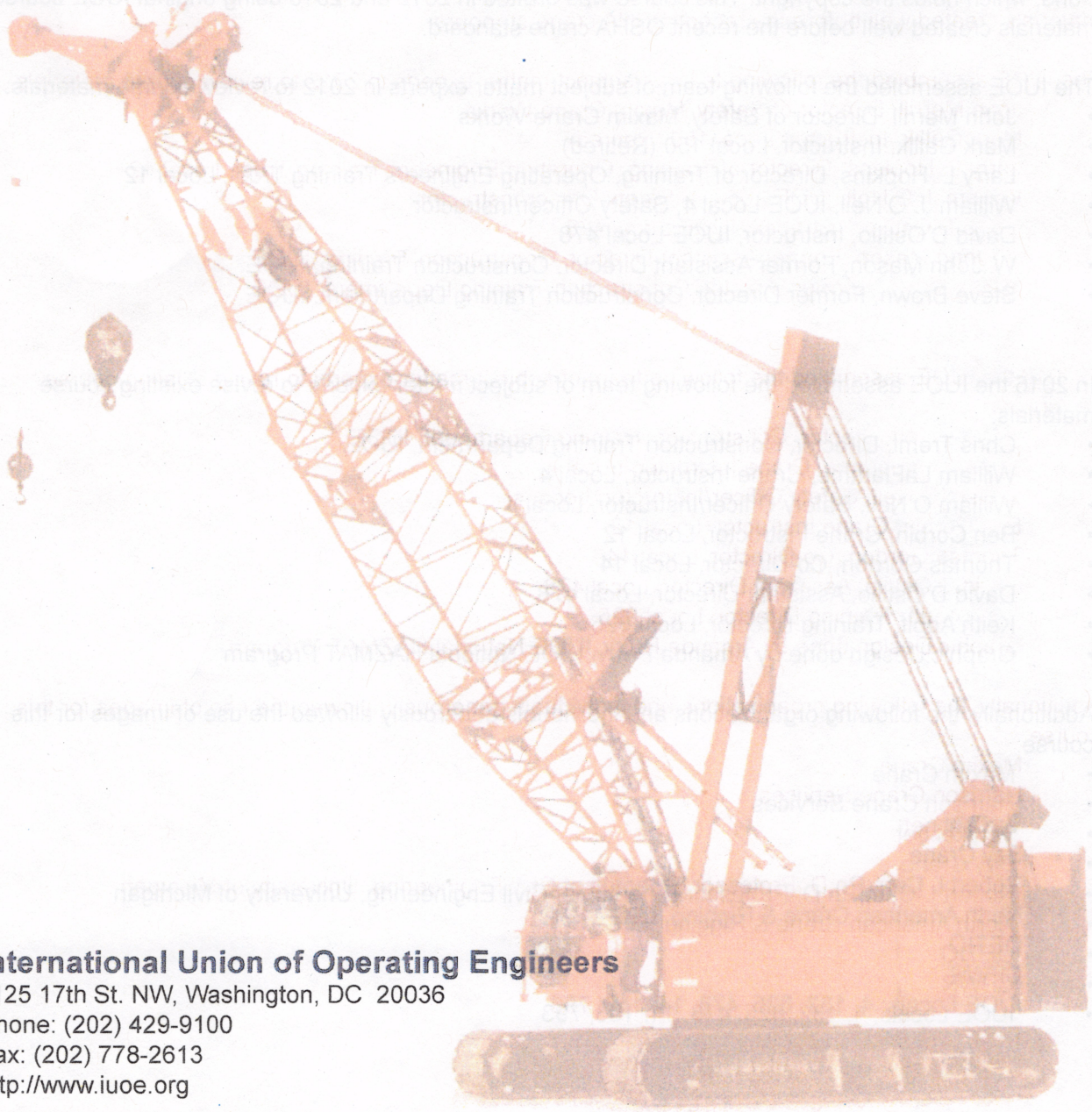
Crane Operator Training

Instructor Manual



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This training course was produced by the International Union of Operating Engineers' National Training Fund, which holds the copyright. This course was drafted in 2012 and 2013 using original IUOE course materials created well before the recent OSHA crane standard.

The IUOE assembled the following team of subject matter experts in 2012 to review course materials:

- John Merrill, Director of Safety, Maxim Crane Works
- Mark Gallik, Instructor, Local 150 (Retired)
- Larry L. Hopkins, Director of Training, Operating Engineers Training Trust, Local 12
- William J. O'Neil, IUOE Local 4, Safety Officer/Instructor
- David D'Ostilio, Instructor, IUOE Local 478
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- Steve Brown, Former Director, Construction Training Department, IUOE

In 2016 the IUOE assembled the following team of subject matter experts to revise existing course materials:

- Chris Treml, Director, Construction Training Department, IUOE
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- Thomas Gordon, Co-Director, Local 14
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- Keith Adolf, Training Director, Local 825
- Graphic Design done by Amanda Petry, IUOE National HAZMAT Program

Additionally, the following organizations and individuals generously allowed the use of images for this course:

- Maxim Crane
- Harrison Crane Services
- Vertikal.net
- Bay Crane
- Robert I. Carr, Ph.D. Professor Emeritus of Civil Engineering, University of Michigan
- North American Crane & Rigging, LLC
- OETIO
- CPWR
- IUOE Locals: 4, 132, 825, 478, 14, 150, 793

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Instructor Notes

Course Delivery and Classroom Management

We encourage you to be an instructor who facilitates the course by fully using the course materials.

This course covers a tremendous amount of information, but is designed to keep the students engaged through discussions, individual work in their student manual and sessions of looking up answers in the OSHA Subpart CC standard on mobile cranes. Try to use the activities and questions to draw out students' experiences. The student manual expands on the material presented in the PowerPoint slides and allows space to record answers to activities. Encourage them to write the answers to the exercises in their manuals as a good learning technique. Make sure they understand they can keep the manual and encourage them to write their names on the cover.

Familiarize yourself with the PowerPoints. There are extensive instructor notes in the PowerPoints, including background information. Research has shown that case studies are a great teaching tool; many case studies are included in the course. Details of these cases can be found in the PowerPoint instructor notes.

The disc that accompanies this course contains a great deal of additional materials for your use, including:

- PowerPoints which include: Videos, set of practice questions, photographs of cranes, and additional load charts.
- Digital copies of instructor and student manuals.

This instructor manual has the same page numbering as the student manual so you can easily direct students to a particular page. The PowerPoint presentations will also reflect the page number from the student manual so students can easily follow along.

Training Materials for Course

Recommended AV and classroom equipment:

- Laptop or PC for running presentations.
- Projector/screen.
- Remote slide advancer.
- Two easels and flip chart paper.
- Markers (various colors for activities and discussion facilitation).
- IUOE Crane Operators Training Instructors Manual.
- IUOE Crane Operators Training PowerPoint.
- Wireless internet access (optional).

Materials for each student:

- IUOE Crane Operators Training Student Manual.
- OSHA Subpart CC Pocket Guide (recommended).

Materials class activities:

- Note paper.
- Pens/pencils.
- Markers (various colors for activities) one set per group.

Student Activities and Group Discussions

Questions that require a student response are noted in italics.

» This symbol is a prompt for an answer.

In this instructor manual, correct answers are provided for each question.

Students should become very familiar with OSHA Subpart CC and ASME.

The new OSHA crane standards are important and complex. As part of the course materials, each student should receive a copy of the OSHA standard produced by the IUOE. The ASME standards may be available for review. When you see this icon, direct the students to use their Subpart CC standards to find the correct standard and to answers the questions in their manual.

Topic Quizzes

Appendix A contains quizzes for each topic covered in this manual and are recommended to check the student's knowledge retention.

Mastery of math skills is very important.

Basic mathematical concepts and formulas are covered in Modules 2 (Math and Study Skills) and 21 (Verifying the Weight of the Lift), but computations are required throughout the course. Appendix B (Math Exercises) offers a set of practice questions for students to help them sharpen their skills. When you see this icon, encourage students to work problems in their manual.